

### WHAT IS CLAIMED IS:

1. An optical input device capable of determining properties of a reflective plane, comprising:

a light device, to project an incident light onto a reflective plane;

5 a first photosensor, to receive diffusing light produced on the reflective plane by the incident light, compute a total diffusing light and accordingly determine unevenness and micro-scragginess of the reflective plane to find distance and direction moved by the optical input device;

10 a second photosensor, to sense reflecting light produced on the reflective plane by the incident light; and

a microprocessor, to compute a value of transmitting light produced when the incident light passes through the reflective plane and accordingly determines properties of the reflective plane according to values of the total diffusing light, the reflecting light and the incident light.

15 2. The optical input device as claimed in claim 1, wherein the microprocessor computes the value of transmitting light based on the following equation:

$$R_r = I - R_1 - f(L),$$

20 where  $R_r$  is the transmitting light,  $I$  is the incident light,  $R_1$  is the reflecting light,  $f(L)$  is the total diffusing light.

3. The optical input device as claimed in claim 1, wherein the optical input device is an optical mouse.

4. The optical input device as claimed in claim 3, wherein the optical input device has an opening in a bottom of the optical input device

such that the incident light is projected to the reflective plane through the opening.

5. The optical input device as claimed in claim 4, wherein the first photosensor is disposed above the opening.

5           6. The optical input device as claimed in claim 1, wherein the second photosensor is disposed in a path corresponding to the reflecting light projected by the light device.

7. The optical input device as claimed in claim 1, wherein the light device is a light emitting diode (LED) die.

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